CLAIMS

1. A multiple-zone power control system for controlling power distribution to electric heating elements, the system comprising:

a power control unit comprising a plurality of control zones for controlling the delivery of power to respective electric heating elements; and

a touch-sensitive key for alternately activating and deactivating a designated one of the plurality of control zones when the touch-sensitive key is touched by a user;

wherein when all of the plurality of control zones are deactivated, the touch-sensitive key must be touched for at least a cold start duration in order to activate the designated one of the plurality of control zones; and

wherein when at least one of the plurality of control zones is activated, the touch-sensitive key must be touched for at least a minimum key-touch duration in order to activate the designated one of the plurality of control zones, the minimum key-touch duration being shorter than the cold start duration.

2. The system of claim 1, wherein when the designated one of the plurality of control zones is activated, the designated one of the plurality of control zones will always be deactivated when the touch-sensitive key is touched for at least a minimum key-touch duration, the minimum key-touch duration being shorter than the cold start duration.

3. The system of claim 1, wherein the cold start duration is 500 milliseconds or greater.

4. The system of claim 1, wherein the minimum key-touch duration is 200 milliseconds or greater.

5. A method of reducing inadvertent power activation during a wiping/cleaning operation of a touch-sensitive power control input panel, comprising steps of:

sensing that a touch-sensitive on/off key has been touched by a user;

after the step of sensing, activating a power control zone that corresponds to the touch-sensitive on/off key if at least one other power control zone is activated and the on/off key remains touched for at least a minimum key-touch duration; and

after the step of sensing, activating a power control zone that corresponds to the touch-sensitive on/off key if the on/off key remains touched for at least a cold start duration, the minimum key-touch duration being shorter than the cold start duration.

6. The method of claim 5, further comprising a step of, after the step of sensing, deactivating the power control zone that corresponds to the touch-sensitive on/off key if the power control zone that corresponds to the touch-sensitive on/off key is activated and the on/off key remains touched for at least a minimum key-touch duration.

7. A multiple-zone power control system for controlling power distribution to electric heating elements, the system comprising:

a power control unit comprising a plurality of control zones for controlling the delivery of power to respective electric heating elements;

a touch-sensitive on/off key for alternately activating and deactivating a

designated one of the plurality of control zones when the touch-sensitive on/off key is touched by a user; and

a touch-sensitive function key for controlling a function of the designated one of the plurality of control zones when the touch-sensitive function key is touched by a user;

wherein the designated one of the plurality of control zones is prevented from being activated if the touch-sensitive function key is touched while the touch-sensitive on/off key is being touched.

8. The system of claim 7, wherein the designated one of the plurality of control zones is not prevented from being deactivated if the touch-sensitive function key is touched while the touch-sensitive on/off key is being touched.

9. The system of claim 7, further comprising:

a first group of keys including the touch-sensitive on/off key and the touch-sensitive function key; and

a second group of keys being spaced apart from the first group of keys, wherein the designated one of the plurality of control zones is not prevented from being activated if a touch-sensitive key of the second group of keys is touched while the touch-sensitive on/off key is being touched.

10. The system of claim 7, further comprising a touch-sensitive slew-up key for incrementing a power level set point of the power control unit, and wherein the touch-sensitive function key is a slew-down key for decrementing the power level set point of the power control unit.

11. The system of claim 7, wherein the touch-sensitive function key is a surface element selection key for selecting which of a plurality of electric heating elements of one of the control zones to control.

12. A power control system for controlling power to electrical heating elements, the system comprising:

a communication bus;

a first power controller for controlling power to a heating element of an oven, the first power controller being connected to the communication bus;

a second power controller for controlling power to a heating element of a cooktop, the second power controller being connected to the communication bus; and

a user interface controller for inputting and displaying control data for controlling the second power controller, the user interface controller being connected to the communication bus;

wherein when one of the first power controller and the second power controller initiates a lockout condition, the other one of the first power controller and the second power controller initiates a corresponding lockout condition in response to a lockout signal being provided on the communication bus.

13. The system of claim 12, wherein the first power controller communicates with the user interface controller via the communication bus for displaying information on a display of the user interface controller.

14. The system of claim 12, wherein the first power controller is a master controller and both the second power controller and the user interface controller are slaves to the first power controller.

15. The system of claim 12, wherein at least one of the second power controller and the user interface controller sends status information to the first power controller via the communication bus.

16. The system of claim 12, wherein the user interface controller includes a plurality of key-based interfaces for controlling each of a plurality of cooking zones.

17. The system of claim 12, wherein one of the first power controller and the second power controller provides operating power to at least one of the first power controller, the second power controller, and the user interface controller.

18. The system of claim 17, wherein the operating power and the communication bus are connected to at least one of the first power controller and the second power controller via a common connector.

19. The system of claim 12, wherein the second power controller comprises an upper temperature limit input for receiving an upper temperature limit signal from an upper temperature limit sensor of the heating element of the cooktop.

20. The system of claim 19, further comprising a bi-metal thermostatic switch connected to the upper temperature limit input of the second power controller, the bi-metal thermostatic switch serving as the upper temperature limit sensor.

21. The system of claim 12, wherein the second power controller comprises a hot-surface input for receiving a hot surface signal from a hot surface sensor of the heating element of the cooktop.

22. The system of claim 21, further comprising a bi-metal thermostatic switch connected to the hot surface input of the second power controller, the bi-metal thermostatic switch serving as the hot surface sensor.

23. The system of claim 12, further comprising a relay connected to the second power controller for providing power to the heating element of the cooktop.

24. The system of claim 12, wherein the communication bus comprises a single-wire serial data bus.

25. The system of claim 12, wherein one of the first power controller and the second power controller comprises a test mode for allowing both the first power controller and the second power controller to be demonstrated without providing power to the heating elements, and wherein a test signal is provided to the communication bus upon activation of the test mode.

26. A cooktop for a cooking appliance, the cooktop comprising:

a first heating element;

a second heating element at least partially surrounding the first heating element;

a third heating element at least partially surrounding the second heating element;

a power controller for selectively providing power at a selected level according to three operating modes, the three operating modes comprising: a first operating mode in which the power controller provides power at the selected level to the first heating element, a second operating mode in which the power controller simultaneously provides power at the selected level to the first heating element and the second heating element, and a third operating mode in which the power controller simultaneously provides power at the selected level to the first heating element, the second heating element and the third heating element; and

a touch-sensitive mode selection key for selecting each of the three operating modes, wherein the power controller selects a next one of the three operating modes according to a predetermined sequence each time the mode selection key is touched.

27. The cooking appliance of claim 26, wherein the second heating element concentric to the first heating element, and the third heating element concentric to both the first heating element and the second heating element.

28. The cooking appliance of claim 26, wherein the predetermined sequence comprises the first mode followed by the second mode followed by the third mode.

29. The cooking appliance of claim 28, wherein the predetermined sequence further comprises the third mode followed by the first mode.

30. The cooking appliance of claim 28, wherein the predetermined sequence further comprises the third mode followed by the second mode.

31. The cooking appliance of claim 26, wherein the predetermined sequence comprises the third mode followed by the second mode followed by the first mode.

32. A cooktop for a cooking appliance, the cooktop comprising:

a first heating element;

a second heating element;

a third heating element;

a first user interface controlling the first heating element individually in a first operating mode of the first user interface, controlling the first heating element and the second heating element together in a second operating mode, and the first heating element, the second heating element, and the third heating element together in a third

operating mode;

a second user interface controlling the third heating element individually in the first operating mode; and

a touch-sensitive mode selection key provided to the first user interface for selecting each of the three operating modes, wherein the first user interface selects a next one of the three operating modes according to a predetermined sequence each time the mode selection key is touched.

33. The cooktop of claim 32, wherein the second heating element is positioned between the first heating element and the second heating element.

34. The cooktop of claim 33, wherein the predetermined sequence comprises the first mode followed by the second mode followed by the third mode.

35. The cooktop of claim 34, wherein the predetermined sequence further comprises the third mode followed by the first mode.

36. The cooktop of claim 34, wherein the predetermined sequence further comprises the third mode followed by the second mode.